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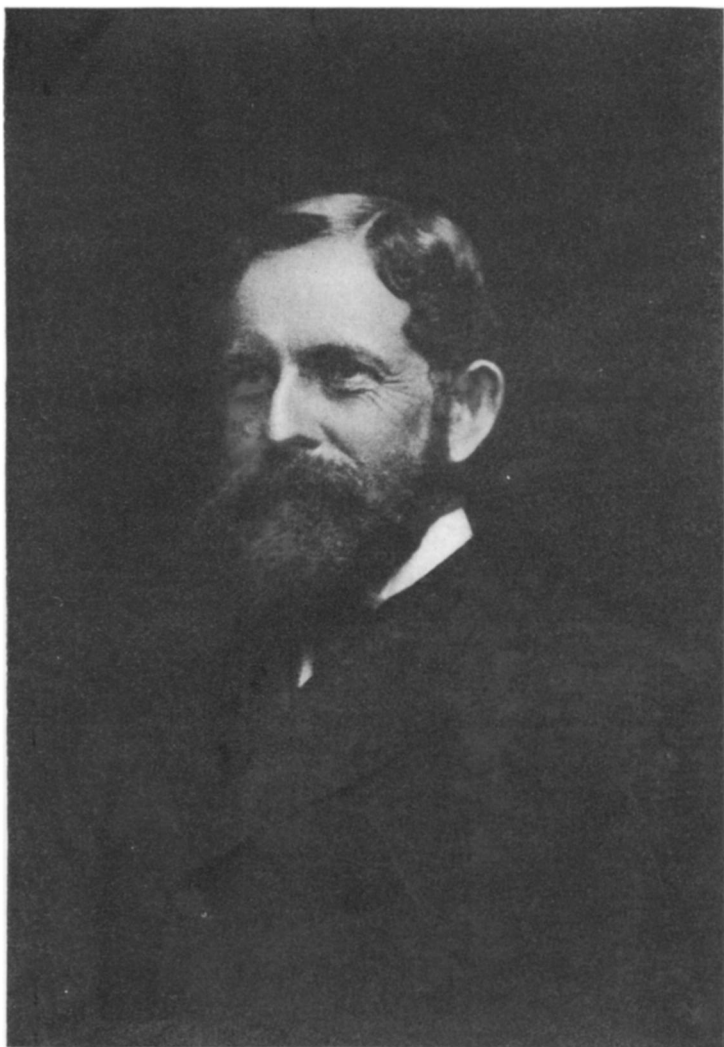
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CHARLES SMITH PROSSER

## CHARLES SMITH PROSSER—A TRIBUTE

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The history of the organization of the Society of the Sigma Xi is probably well known to nearly all of its members. In the spring of 1886 two organizations were formed at Cornell University, one the Society of Cornell University Geologists, under the leadership of Professor Henry Shaler Williams, the other the Society of the Sigma Xi, with a membership drawn from the engineering college. In the fall of the same year Professor Williams, planning to enlarge the scope of his society and to make it a national organization, learned of the newly organized Sigma Xi and suggested to its members that they join forces. The suggestion was favorably received and at the fourth meeting of the society Professor Williams was elected to membership and soon became virtually the leader of the movement. At the fifth meeting, probably early in 1887, nine additional members were taken into the society, some of whom had been members of the Society of Cornell University Geologists.\* One of these men, who were thus the first initiates of the Society of the Sigma Xi, was Charles Smith Prosser, whose sudden death occurred in Columbus, Ohio, on September 11, 1916.

By disposition an investigator and with a great love for natural history, Doctor Prosser was from his early boyhood situated among surroundings that tended to nourish these traits. He was born in Columbus, Chenango County, New York, March 24, 1860, and his early years were all spent among the hills of Chenango and Madison counties. His paternal grandfather was one of the pioneers of the Unadilla valley; and through his mother he was descended from William and Elizabeth Tuttle who came from England to Massachusetts in 1635 and whose descendants have furnished so many prominent educators to our colleges. His marked ability for careful and accurate observation of natural objects was a heritage from his mother, who died when her son was only fifteen years of age. A boy living on a farm, without brothers or sisters, he turned to the animals, plants, and rocks about him for amusement and diversion. His disposition to observe, to investigate, and to collect manifested itself at an early age. Some of his early collections are still in existence—fossils gathered from the rocks of

\*See SIGMA XI QUARTER CENTURY RECORD AND HISTORY, pp. 1-8.

his native hills, a few sea-shells treasured as only a child born far inland can treasure them, and tiny specimens of mosses carefully pressed and mounted. As a child he attended district school, and at the age of sixteen he entered the Union school at Brookfield, from which he was graduated in 1879. During these years in the Brookfield school his interest in natural history was somewhat subordinated to other interests, and many years afterward he wrote: "The early interest of boys in objects to be found in field and forest is often atrophied by the 'super-civilization' of the secondary studies." At this period of his life, history attracted him strongly, especially the history of our own country during the Revolutionary and Civil wars. This interest he always retained, although in his later years it was principally in the nature of relaxation from his more absorbing scientific work.

That his interest in natural history was not atrophied in secondary school is evidenced by his undergraduate record at Cornell University, which he entered in the fall of 1879. In those days each student at Cornell was expected to keep a course book in which were entered his subjects and his standing in each one, as "passed," "passed creditably," or "passed honorably." In Doctor Prosser's course book it is noticeable that almost without exception all of his work in natural sciences was "passed honorably." He was graduated from Cornell University in 1883, and the following year was a graduate student in natural history. During his undergraduate days his interest was perhaps equally divided between geology and botany, but in his graduate work geology held first place. In 1884-1885 he was the Cornell fellow in natural history, being the first student to be granted the honor of this fellowship. From 1885 to 1888 he was instructor in paleontology in Cornell, and received the degree of master of science in 1886, the same year in which the Society of the Sigma Xi was organized. Even as an undergraduate he was interested in research work, and as a graduate student he undertook for himself the investigation of certain problems, impelled by the spirit of scientific research which, according to his own later accounts, was so strongly developed in Cornell University. The intensity of his interest in scientific investigation is suggested by the fact that from his small salary he saved money to invest in salt-well stock in order that he might have access to the

well records. He had by this time become so filled with the spirit of research, the "seeking in nature for the truth," that it was the dominant force in his life. It is small wonder, then, that when Professor Williams organized the Society of Cornell University Geologists in the spring of 1886, he chose as one of the members this young man whose interest in research work was so great and who had been for three summers his own assistant in field work for the United States Geological Survey.

The story of the organization of this society was one that Professor Prosser loved to tell. During commencement week of 1886 those selected for membership were asked to meet in the geological laboratory. Professor Williams then made a short speech after which he presented to each man a small geological hammer stamped on one side with his initials and date of graduation and on the other with the letters S.C.U.G. (Society of Cornell University Geologists). The hammer that Professor Prosser received on this occasion he always prized very highly. To many of us who were his students in later years that small square-headed hammer, stamped on one side C.S.P. 1883, was infinitely more than a geological hammer. It formed the basis of many a talk concerning the early days of the Sigma Xi and the ideals of the organizers and early members. It became a symbol of industry, patience, and thoroughness in the search for new facts, of open-mindedness and mental honesty in the acceptance of the facts when learned, and of accuracy and care in their interpretation.

The importance of Professor Prosser's influence on his students could scarcely be overestimated. Students who came into his classes were attracted by his personality and remained to take more advanced work with him. Not only his students who became geologists received inspiration from him, but others whose special work has been along other lines than geology gained from his courses a training that has proved invaluable to them. There are even students who were never in his classes but who knew him personally who regard their associations with him as among the most valuable of their college experiences. Of all his courses those in field work were the most popular and it was probably in these that his teaching was most successful. He taught his students to work independently and to be self-reliant. He believed

in arousing their interests instead of driving them to tasks. Nothing was too difficult for him to do for them personally, but in their work he expected them to depend upon themselves.

He was a firm believer in the idea that teaching and investigating go hand in hand and that no man can be a successful teacher of science without being an investigator. He encouraged his students to undertake research work and taught them that even a small problem carefully worked out is of distinct value, and to be preferred to a more ambitious piece of work done in a superficial way. While his own best energy was devoted to geology, his interests were broad. To his mind a student's research in geology did not preclude investigations along other lines. On his field trips the discovery of a rare plant was almost as much of an event as the discovery of a rare fossil. His realization of the interdependence of the natural sciences was one of his striking characteristics, and in the writer's experience was equalled only by that of another ardent investigator who was also a member of Sigma Xi, an alumnus of Cornell, and a professor in Ohio State University, Doctor William A. Kellerman.

In a recent account of Professor Prosser's life Doctor John M. Clarke says: "There stand to his credit men of great worth in this science in American universities who were moulded by his hand, but for each one of these trained and proficient men there are scores who have felt the inspiration of his lectures, have been uplifted by his unstudied but unfailing courtesy and thoughtfulness, and have been inspired by their association with him in the field."<sup>1</sup> His was the genuine courtesy that springs from the heart. The most humble persons who came in contact with him received as great kindness and consideration as those in exalted positions. One of the most striking effects of his associations with students was the way in which through daily contact with him they developed fine courtesy and gentleness of manner. The deep kindliness of his nature made a special appeal to students from other lands who often found communication by the spoken word somewhat difficult, and they were his devoted friends. Undoubtedly, his success as a teacher was in great measure due to his strong personal interest in people.

<sup>1</sup> Science, n. s., vol. 44, p. 558, October 20, 1916.

From 1883 to 1888 Professor Prosser was an assistant to Doctor Henry S. Williams, who had charge of the Devonian geology for the United States Geological Survey, and the greater part of his summer vacations were spent in field work in New York, Pennsylvania, and Ohio. In 1888 he left Cornell and became an assistant paleontologist on the United States Geological Survey in the division of paleobotany. This position he held for four years, during which time he was detailed for field work in New York, Pennsylvania, Maryland, Virginia, and Arkansas. In 1892 he went to Washburn College, Topeka, as professor of natural history, but he still retained his connection with the federal survey, and the summer months were spent in field work on the Carboniferous and Permian formations of Kansas. In 1894 he was called to Union College, Schenectady, to organize the department of geology, and he remained there as professor of geology until 1899. During the greater part of that time he was an assistant geologist on the New York Survey, working especially on the Devonian and Silurian formations of the eastern part of the state. The summer of 1896 he spent in field work on the Permian and Cretaceous formations of the Kansas-Nebraska region, as an assistant geologist of the Kansas University Geological Survey. In 1898 he became chief of the Appalachian division of the Maryland Geological Survey and for several years devoted the greater part of his summers to field work on the paleozoic formations of Maryland, West Virginia, and Pennsylvania. This field work furnished the data for his part of the exhaustive report on the Maryland Devonian, as well as for shorter papers on certain of the localities studied.

In 1899 Doctor Edward Orton, first president of Ohio State University and professor of geology, realizing his failing strength, looked about him for some man to succeed him in the department. Professor Prosser was selected and, on nomination of Doctor Orton himself, was appointed to the position. From that time until his death, seventeen years later, Professor Prosser was devoted to the interests of Ohio State University. For some time after coming to Ohio he retained his connection with the New York and Maryland Geological Surveys, but in 1900 he became a member of the Ohio Geological Survey and much of his work of later years was in this state. His published reports on Ohio geology number over a score,

the most elaborate being Bulletin 15 of the Survey, on the Devonian and Mississippian of northeastern Ohio. This is a volume of nearly six hundred pages and represents a vast amount of careful, accurate work in the region studied. It was not his way to draw conclusions hastily or from insufficient data; he had too judicial a mind for that. Once he had undertaken the study of any problem he collected his data as carefully as a skillful lawyer collects evidence. No point was too small to be worthy of investigation, and no information gained was left to memory alone for keeping. Every item was carefully recorded without delay. After the evidence was all gathered there was time for the summing up and the drawing of conclusions. During the time of collecting data he endeavored to keep his mind unbiased, saying that "conclusions formed too quickly give a slant to mental vision." This method of procedure gave to his work a peculiar value. Others might possibly differ from him in regard to the interpretation of the facts he had collected, but of the facts themselves, of the accuracy of his observations, there could be no doubt. After he had studied any region in his careful and detailed manner practically nothing was left for anyone else to do in the way of adding to the information he had gathered. In the matter of interpretation he was disposed to caution. He sometimes said that many men must make and record observations in order that the few might make the broad interpretations. The broadest interpretations, he modestly claimed, were beyond his province; but the conclusions that he did make were so carefully worked out on so broad a foundation of fact that he was prepared to defend them against all comers.

After the completion of his work on the Devonian and Mississippian of the northeastern part of the state he took up the investigation of the Silurian rocks of Ohio, and had spent parts of several summers in field work in the western and southern counties. At his death he left in manuscript form the carefully prepared report on the area in southern Ohio for which the field work had been completed. He also left the unfinished manuscript of the vice-presidential address he was expecting to give before the geological section of the American Association for the Advancement of Science at the holiday meetings. He was one of the most extensive contributors to the geological literature of North America during the last



quarter century, and his published reports and papers number more than one hundred.

In 1907 Professor Prosser received the degree of doctor of philosophy from Cornell University, and in 1906 Union College conferred on him the honorary degree of doctor of science. He was one of the original Fellows of the Geological Society of America, and was a member of several other scientific societies in this country and abroad.

His relations with his colleagues were pleasant and cordial, though it was by his students he was best known and most beloved. In his friendships he showed the same scrupulous honor, the same thoroughness and loyalty, and the same abundant giving of himself and his energy that he displayed in his scientific work. It was not uncommon for younger members of the faculty from other departments as well as from his own to come to him for help and advice in academic problems or personal undertakings. To them he was always a wise counsellor and never too busy to supplement his words by actions. In this, as in his teaching and his scientific work, his death has left a vacancy that can never be adequately filled.

Not long after coming to Ohio State University Professor Prosser became a member of the local chapter of the Sigma Xi, which had recently been formed. He was always active in the local affairs of the society, and no member of the Omega Chapter did more to uphold the high standards of the founders. One of the latest expressions of his ideals for the society was given in his presidential address to the initiates of the Omega Chapter on May 21, 1914.<sup>1</sup>

"There is no greater fallacy than the idea that all men are born equal, so far as mental ability is concerned. This fact appears to have been frequently lost sight of during recent years in the efforts to secure large numbers of students by those responsible for the administration of our universities. . . . The principal reason for your election to this society, as the speaker sees it, is that you have either made some contribution to science or that you give promise of being able to perform such service. . . . This chapter of Sigma Xi in electing you to its membership believes you have the ability and purpose to serve your generation in the dis-

<sup>1</sup> Science, n. s., vol. 40, pp. 253-256, August 21, 1914.

covery and advancement of scientific knowledge, and by accepting such membership you promise, so far as lies within your power, to carry out this purpose. You will note, therefore, that membership in this society, providing one lives up to the trust imposed on him, carries with it certain responsibilities which, like the marriage vows, are not to be lightly assumed. It means, perhaps, in the first place that you are not to make the getting of money the foremost object of your life work. Now this fact alone to an American in his commercial age is a matter of grave importance and one that eliminates from our membership most of those who are actively engaged in 'business, with its self-seeking and bargaining' in contrast to those in 'the world of science, with its self-renunciation and mutual confidence.' This is what Professor Titchener calls the 'vow of honorable poverty' and the first one that a scientific man must take. The second vow is that of hard work, which is likewise not an easy one, since the natural inclination of most men is not toward strenuous exertion when it is not called for by the necessities of life. There is no use in trying to ignore the fact that in almost all cases the discovery of new facts requires hard and exhausting work for which in general there is no pecuniary reward that ranks at all with what would be secured if the same amount of energy were put forth in the commercial or professional world. And this fact again eliminates from the ranks of the real scientific workers the large majority of even college and university trained young men and women. Finally, Professor Titchener sets a third vow for the man of science, and that is isolation, which is perhaps after all, the most difficult one. . . . .

"You are thinking, undoubtedly, that few and perhaps none of the members of Sigma Xi come up to this standard. It is granted at once, for this difference between the claims and the realities of the Society has long been recognized. It is, however, the *ideal* toward which the society aims, and few human organizations come up to the full measure of the vision of their leaders. It is very true that you can find plenty of members of this Society who have not apparently justified their election; but it is really after all a tribute to its standing that they wish to become and remain members. Probably for one reason or another, some good and others not, not even all of you who are present tonight for the purpose of initiation

will in any considerable degree attain to the ideals that have been formulated for this organization. This mixed active and inactive membership of the Society for a long time disturbed the speaker, as it has various others who are keenly interested in the high aims of Sigma Xi. In later years, however, he has come to consider that it is probably inevitable to a considerable degree. If the active members of the chapters have a fairly clear appreciation of the meaning of the society and are conscientious in nomination and election of members, that is probably about all that can be expected. As the world in which we live today exists, the clever manipulator, the politician, or the man of unlimited assurance frequently fills the position of importance rather than the man of merit. Some will know the difference, but probably with the mass of people the man who has a big amount of assurance will very frequently be able to pass the counterfeit as the genuine. It is believed, however, that we ought not to be unduly discouraged by this fact, and that we should not in any measure lower the standards and ideals of Sigma Xi. Even in the Church of God the saint and sinner, the genuine and the hypocrite, are associated. You will remember in the parable of the wheat and the tares that the householder commanded the servants not to attempt to separate the tares from the wheat 'lest while ye gather up the tares, ye root up also the wheat with them.' So in our own society it is believed that you are called to a great work, to help increase the sum of human knowledge, and one that calls for the best efforts that you can put forth. It is believed that this is a personal call to each one of you, so far as it may be possible to consecrate whatever God-given talent you possess to some earnest work toward the increase and dissemination of knowledge. It is also believed that you need not be specially concerned whether at present you can see any practical results from such discovery or not. Find the new truth, and neither you nor perhaps anyone can foresee what may be its importance in the future. So do not be overanxious as to whether your research has an immediate pecuniary reward in sight. Remember that Louis Agassiz, the greatest zoologist that America has had, said that he did not have time to make money. His regular efforts brought him, however, a comfortable living and a name that will last far longer than that of most of our American multimillionaires. So my counsel to you is that this is

largely a personal matter and that your main efforts are to be devoted to producing the best of which you are capable, rather than watching and criticizing the efforts or non-efforts of others. If you earnestly and faithfully attempt to live up to the pledge of this society you will have a clear conscience yourself, and in the final estimate of results it is believed you will be classed with the wheat and separated from the tares. . . .

"There is perhaps an appropriateness in the fact that one who was a member of the first list of novitiates of the Alpha Chapter is to put this pledge to you, the youngest members of the Omega Chapter."